

What is claimed is:

1. A torsional vibration damper comprising:
  - a first part and a second part rotatable around an axis of rotation, the first part being pivotable with respect to the second part;
  - at least one energy accumulator compressible through pivoting of the first part with respect to the second parts, the energy accumulator acting around a circumference of the torsional vibration damper, the energy accumulator having at least one spring having end regions and an intermediate region between the end regions; and
  - a carrier for receiving the spring, the carrier being pivotable with respect to the first and second parts, the end regions of the spring being supported in the carrier so that the intermediate region remains contactless, at least up to a limiting rotational speed, in relation to other regions radially overlapping the intermediate region on an outside.
2. The torsional vibration damper as recited in claim 1 wherein the at least one spring includes at least two compression springs positioned one behind another in series, the two compression springs being received in the carrier, facing end regions of the springs located circumferentially in series being supported via at least one support element.
3. The torsional vibration damper as recited in claim 1 further comprising a further spring positioned outside the carrier, the at least one spring received in the carrier being operatively connected in series to the further spring positioned outside the carrier, the additional spring being compressible using support regions provided on the carrier.
4. The torsional vibration damper as recited in claim 3 wherein the further spring is supportable directly on the carrier.

5. The torsional vibration damper as recited in claim 3 wherein an end of the further spring facing toward the carrier is connected to the carrier.
6. The torsional vibration damper as recited in claim 3 wherein the further spring has an elongated shape and is formed by at least one helical spring.
7. The torsional vibration damper as recited in claim 1 wherein the first part and second part are dual-mass flywheel parts, the first part having an annular receiver for the carrier, the carrier being at least limitedly pivotable inside the annular receiver.
8. The torsional vibration damper as recited in claim 7 wherein the annular receiver is delimited by at least one ring-like wall region overlapping the at least one carrier radially on the outside in the axial direction, the wall region thus defining at least partially the other regions.
9. The torsional vibration damper as recited in claim 8 wherein the carrier is radially supported on the ring-like wall region and is movable along the wall region at least under the effect of centrifugal force.
10. The torsional vibration damper as recited in claim 3 wherein the further spring is supportable radially on the outside via at least one support element, the support element being positioned between the further spring and a ring-like wall region overlapping the further spring axially, the support element being movable along the wall region when the further spring is compressed.
11. The torsional vibration damper as recited in claim 10 wherein the at least one support element includes a plurality of support elements spaced apart from one another over a length of the further spring.

12. The torsional vibration damper as recited in claim 7 wherein the annular receiver has support regions for supporting the carrier at least in a relative pivot direction between the first and second parts.
13. The torsional vibration damper as recited in claim 7 wherein the second part has impingement regions projecting into the annular receiver for contacting the at least one spring received in the carrier.
14. The torsional vibration damper as recited in claim 1 wherein the carrier has free regions extending around the circumference, impingement regions for the at least one spring received in the carrier capable of entering the free regions during a relative rotation of the first and second parts.
15. The torsional vibration damper as recited in claim 1 further comprising a second carriers connected to the carrier, the carrier and the second carrier being supported against centrifugal force by at least one ring-like component.
16. The torsional vibration damper as recited in claim 15 wherein the carrier and second carrier are diametrically opposed.